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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,958	10/28/2003	Hayato Nakanishi	117528	4567

25944 7590 02/28/2008

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EXAMINER	
BODDIE, WILLIAM	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
02/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,958	NAKANISHI, HAYATO	
	Examiner	Art Unit	
	William L. Boddie	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,11-13,15 and 17-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,11-13,15 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In an amendment dated, October 30th, 2007, the Applicant amended claims 1-3, 5-6, added new claims 18-22 and cancelled claim 10. Currently claims 1-7, 9, 11-13, 15 and 17-22 are pending.

Response to Arguments

2. Applicant's arguments filed October 30th, 2007 with regards to claims 1-7, 9, 11-13, 15 and 17-22 have been fully considered but they are not persuasive.

3. On pages 9-10 of the remarks, the Applicant argues that LeChevalier-024 does not disclose that precharge lines may be shared in a line that extends from the data line connection along one line toward the precharge circuitry and the detection signal circuitry as claimed in independent claims 1-3, 5-6.

The Examiner must respectfully disagree. Element 274 in figure 8 of LeChevalier-024 disclose is unmistakably electrically connected to both the precharge circuit (294) and the testing circuit (right side circuitry). This column connector, 274, is clearly a single line, which electrically connects the two circuits to the data line, which the pixel resides on. Furthermore, during precharge operation of the device the precharge signal will clearly extend towards the right hand side of the column connector, in essence sending the precharge signal all along column connector 274. The same is true with regards to the testing signal. From this it should be clear that the column connector is shared amongst the precharge and testing circuitry. To further explain, line 274 in figure 8 is the same electrical node. The voltage will be identical along the entire line.

Furthermore, it should also be noted that there appears to be no electrical difference between the wiring of the connections between the precharge / test signal circuitry and the data line of LeChevalier with that of the Applicant. In short the only difference seems to be the way the circuitry was drawn. Electrically, however, there are no more or fewer nodes in LeChevalier's connecting circuitry than the Applicants' invention.

In the Applicant's arguments it appears as though a large amount of weight is being given to the issue that a single line is shared, and their view that 274 in figure 8 is not a single line. It should be further noted that another valid way of mapping the claimed limitation to figure 8 is to call half of the vertical line immediately above the pixel in figure 8 the shared line and the other vertical half above the pixel the beginning of the data line. This mapping is seen as just as valid and does not alter any of the further dependent claim limitations.

On page 11, the Applicant argues that the newly added claim limitations are not disclosed by LeChevalier-024.

The Examiner must again respectfully disagree. The switch in Applicant's invention discloses two transistors which control output and input along the shared line. LeChevalier-024 has identical transistors (822 and 812 in fig. 8) which serve the same purpose.

4. In summary, LeChevalier-024 does, in the Examiner's view, disclose sharing a line between the precharge and test circuitry and wherein that line is furthermore connected to a data line. As such, the rejection of claims 1-7, 9, 11-13, 15 and 17 are

updated to reflect the amendments, but are maintained. Additionally claims 18-22 are newly rejected below.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3-7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enami et al. (US 5,892,493) in view of LeChevalier-130 (US 7,079,130) and further in view of LeChevalier-024 (US 7,050,024).

With respect to claim 1, Enami discloses, an electro-optical device (fig. 1), comprising:

a plurality of scanning lines (G1-Gn in fig. 1);

a plurality of data lines (d1A-dnD in fig. 1);

a plurality of pixel circuits (24, 18 in fig. 1) including a plurality of electro-optical elements (18 in fig. 1) provided to correspond to intersections of the plurality of scanning lines and the plurality of data lines;

a data line driving circuit (40 in fig. 1) to supply a data voltage through the data line to each of the pixel circuits (col. 8, lines 48-60);

first switches (42 in fig. 1) that are part of a precharge circuit (42-46 in fig. 1) to control the supply of a precharge signal ($\pm V_1$ in fig. 1) from a precharge signal supply line (output line from switch 46 in fig. 1) connected to at least one data line of the

plurality of data lines (clear from fig. 1), the precharge signal being less than a data voltage (col. 8, lines 24-33).

Enami does not expressly disclose a second set of switches for output of a detection signal to test lines, or a data line selection circuit that sets the state of the switches.

LeChevalier-130 discloses, a pre-charging display device (fig. 3) comprising: second switches (412, 420, 414 in fig. 4) connected to at least one data line (358 in fig. 1) of a plurality of data lines (358, 368 etc. in fig. 3) to control the output of a detection signal (col. 9, lines 49-58; col. 8, lines 4-9) from the at least one data line to test lines (410, for example in fig. 4; each line connected to each column's switch); and

a data line selection circuit (428, 432 in fig. 4) to set the on or off state of switches that control the output of the detection signal (col. 9, lines 38-49);

the detection signal being used for testing whether a sufficient data voltage has been written in the pixel circuits (col. 14, line 55 – col. 15, line 11).

LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of LeChevalier-130 in the display device of Enami.

The motivation for doing so would have been for power conservation and appropriate precharge voltage application (LeChevalier-130; col. 4, lines 9-18).

Neither LeChevalier-130 nor Enami expressly disclose, wherein the test lines are shared with a precharge signal supply line.

LeChevalier-024 discloses, wherein test lines (right side of 274 in fig. 8; input of 822) are shared with a precharge signal supply line (left side of 274; output of 812 in fig. 8) to form a shared line that extends at least from a connection with the at least one data line along one line toward a precharge signal-generating circuit (294 in fig. 8) and an output of the detection signal (output of 822 in fig. 8).

LeChevalier-024, LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire the circuitry of LeChevalier-130 and Enami as taught by LeChevalier-024.

The motivation for doing so would have been to reduce the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claim 3, Enami discloses, an electro-optical device (fig. 1), comprising:

a plurality of scanning lines (G1-Gn in fig. 1);

a plurality of data lines (d1A-dnD in fig. 1);

a plurality of pixel circuits (24, 18 in fig. 1) including a plurality of electro-optical elements (18 in fig. 1) provided to correspond to intersections of the plurality of scanning lines and the plurality of data lines;

at least two precharge lines (lines output from switch 46 in fig. 1; there is clearly one for each data line) to supply precharge signals ($\pm V_1$ in fig .3) to at least two data lines of the plurality of data lines;

a data line driving circuit (40 in fig. 1) to supply a data voltage through the data line to each of the pixel circuits (col. 8, lines 48-60);

first switches (42 in fig. 1) that are part of a precharge circuit (42-46 in fig. 1) to control the output of the precharge signal ($\pm V_1$ in fig. 1) from the at least two precharge lines to the at least two data lines (clear from fig. 1), each precharge signal being less than a data voltage (col. 8, lines 24-33).

Enami does not expressly disclose a second set of switches for output of a detection signal.

LeChevalier-130 discloses, a pre-charging display device (fig. 3) comprising: second switches (412, 420, 414 in fig. 4) connected to at least one data line (358 in fig. 1) of a plurality of data lines (358, 368 etc. in fig. 3) to control the output of a detection signal (col. 9, lines 49-58; col. 8, lines 4-9) from the at least one data line to test lines (410, for example in fig. 4); and

a data line selection circuit (428, 432 in fig. 4) to set the on or off state of switches that control the output of the detection signal (col. 9, lines 38-49);

the detection signal being used for testing whether a sufficient data voltage has been written in the pixel circuits (col. 14, line 55 – col. 15, line 11).

LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of LeChevalier-130 in the display device of Enami.

The motivation for doing so would have been for power conservation and appropriate precharge voltage application (LeChevalier-130; col. 4, lines 9-18).

Neither LeChevalier-130 nor Enami expressly disclose, wherein the test lines are shared with a precharge signal supply line.

LeChevalier-024 discloses, wherein test lines (right side of 274 in fig. 8; input of 822) are shared with a precharge signal supply line (left side of 274; output of 812 in fig. 8) to form a shared line that extends at least from a connection with the at least one data line along one line toward a precharge signal-generating circuit (294 in fig. 8) and an output of the detection signal (output of 822 in fig. 8).

LeChevalier-024, LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire the circuitry of LeChevalier-130 and Enami as taught by LeChevalier-024.

The motivation for doing so would have been to reduce the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claim 4, Enami and LeChevalier-130 disclose, an electro-optical device according to claim 3 (see above).

Enami as modified by LeChevalier-130 discloses, a data line selection circuit (428, 432 in fig. 4) to control precharge signals output from the at least 2 data lines to the test lines by sequentially operating the 2nd switches (LeChevalier-130; col. 3, lines 48-51).

With respect to claim 5, Enami discloses, a method of driving an electro-optical device (col. 1, lines 7-9), including:

a plurality of scanning lines (G1-Gn in fig. 1);

a plurality of data lines wired to intersect the scanning lines (d1A-dnD in fig. 1);

a plurality of pixel circuits (24, 18 in fig. 1) including electronic circuits provided to correspond to intersections of the scanning lines and the data lines (18, 24 in fig. 1);

a data line driving circuit (40 in fig. 1) to supply a data voltage through the data line to each of the pixel circuits (col. 8, lines 48-60);

first switches (42 in fig. 1) that are part of a precharge circuit (42-46 in fig. 1) to control the supply of a precharge signal ($\pm V_1$ in fig. 1) from a precharge signal supply line (output line from switch 46 in fig. 1) connected to at least one data line of the plurality of data lines (clear from fig. 1), the precharge signal being less than a data voltage (col. 8, lines 24-33),

supplying a precharge signal from a precharge signal supply line to the data lines through the first switches when one of the plurality of scanning lines is selected (col. 9, lines 43-52); and

supplying data signals to electronic circuits connected to the selected scanning line through the data lines (col. 8, lines 48-60).

Enami does not expressly disclose a second set of switches for output of a detection signal, or outputting data signals supplied to the data lines as detection signals to test lines.

LeChevalier-130 discloses, a pre-charging display device (fig. 3) comprising: second switches (412, 420, 414 in fig. 4) connected to at least one data line (358 in fig. 1) of a plurality of data lines (358, 368 etc. in fig. 3) to control the output of a detection signal (col. 9, lines 49-58; col. 8, lines 4-9) from the at least one data line to test lines (410, for example in fig. 4); and

a data line selection circuit (428, 432 in fig. 4) to set the on or off state of switches that control the output of the detection signal (col. 9, lines 38-49);

the detection signal being used for testing whether a sufficient data voltage has been written in the pixel circuits (col. 14, line 55 – col. 15, line 11);

outputting data signals supplied to the data lines as detection signals to test lines through the second switches (col. 7, lines 58-67); and

using the detection signal for testing whether a sufficient data voltage has been written in the pixel circuit (col. 14, line 55 – col. 15, line 11).

LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of LeChevalier-130 in the display device of Enami.

The motivation for doing so would have been for power conservation and appropriate precharge voltage application (LeChevalier-130; col. 4, lines 9-18).

Neither LeChevalier-130 nor Enami expressly disclose, wherein the test lines are shared with a precharge signal supply line.

LeChevalier-024 discloses, wherein test lines (right side of 274 in fig. 8; input of 822) are shared with a precharge signal supply line (left side of 274; output of 812 in fig. 8) to form a shared line that extends at least from a connection with the at least one data line along one line toward a precharge signal-generating circuit (294 in fig. 8) and an output of the detection signal (output of 822 in fig. 8).

LeChevalier-024, LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire the circuitry of LeChevalier-130 and Enami as taught by LeChevalier-024.

The motivation for doing so would have been to reduce the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claim 6, Enami discloses, a method of driving an electro-optical device (col. 1, lines 7-9), including:

a plurality of scanning lines (G1-Gn in fig. 1);

a plurality of data lines wired to intersect the scanning lines (d1A-dnD in fig. 1);

a plurality of pixel circuits (24, 18 in fig. 1) including electronic circuits provided to correspond to intersections of the scanning lines and the data lines (18, 24 in fig. 1);

at least two precharge lines (lines output from switch 46 in fig. 1; there is clearly one for each data line) to supply precharge signals ($\pm V_1$ in fig. 1) to at least two data lines of the plurality of data lines;

a data line driving circuit (40 in fig. 1) to supply a data voltage through the data line to each of the pixel circuits (col. 8, lines 48-60);

first switches (42 in fig. 1)) that are part of a precharge circuit (42-46 in fig. 1) to control the supply of a precharge signal ($\pm V_1$ in fig. 1) from a precharge signal supply line (output line from switch 46 in fig. 1) connected to at least one data line of the plurality of data lines (clear from fig. 1), the precharge signal being less than a data voltage (col. 8, lines 24-33),

supplying a precharge signal from a precharge signal supply line to the data lines through the first switches when one of the plurality of scanning lines is selected (col. 9, lines 43-52); and

supplying data signals to electronic circuits connected to the selected scanning line through the data lines (col. 8, lines 48-60).

Enami does not expressly disclose a second set of switches for output of a detection signal, or outputting data signals supplied to the data lines as detection signals to test lines.

LeChevalier-130 discloses, a pre-charging display device (fig. 3) comprising: second switches (412, 420, 414 in fig. 4) connected to at least one data line (358 in fig. 1) of a plurality of data lines (358, 368 etc. in fig. 3) to control the output of a detection

signal (col. 9, lines 49-58; col. 8, lines 4-9) from the at least one data line to test lines (410, for example in fig. 4); and

a data line selection circuit (428, 432 in fig. 4) to set the on or off state of switches that control the output of the detection signal (col. 9, lines 38-49);

the detection signal being used for testing whether a sufficient data voltage has been written in the pixel circuits (col. 14, line 55 – col. 15, line 11);

outputting data signals supplied to the data lines as detection signals to test lines through the second switches (col. 7, lines 58-67); and

using the detection signal for testing whether a sufficient data voltage has been written in the pixel circuit (col. 14, line 55 – col. 15, line 11).

LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of LeChevalier-130 in the display device of Enami.

The motivation for doing so would have been for power conservation and appropriate precharge voltage application (LeChevalier-130; col. 4, lines 9-18).

Neither LeChevalier-130 nor Enami expressly disclose, wherein the test lines are shared with a precharge signal supply line.

LeChevalier-024 discloses, wherein test lines (right side of 274 in fig. 8; input of 822) are shared with a precharge signal supply line (left side of 274; output of 812 in fig. 8) to form a shared line that extends at least from a connection with the at least one

data line along one line toward a precharge signal-generating circuit (294 in fig. 8) and an output of the detection signal (output of 822 in fig. 8).

LeChevalier-024, LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire the circuitry of LeChevalier-130 and Enami as taught by LeChevalier-024.

The motivation for doing so would have been to reduce the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claim 7, Enami, LeChevalier-024 and LeChevalier-130 disclose the electro-optical device according to claim 1 (see above).

Enami further discloses, when combined with LeChevalier-024 and LeChevalier-130, an electronic apparatus (Enami; col. 1, lines 7-21) equipped with the electro-optical device of claim 1 (see above).

With respect to claim 12, Enami, LeChevalier-024 and LeChevalier-130 disclose, the electro-optical device of claim 3 (see above).

Neither LeChevalier-130 nor Enami expressly disclose, wherein the test lines are shared with a precharge signal supply line.

LeChevalier-024 discloses, wherein test lines (right side of 274 in fig. 8; input of 822) are shared with a precharge signal supply line (left side of 274; output of 812 in fig. 8).

LeChevalier-024, LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire the circuitry of LeChevalier-130 and Enami as taught by LeChevalier-024.

The motivation for doing so would have been to reduce the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claims 18 and 20-22, Enami, LeChevalier-024 and LeChevalier-130 disclose, the electro-optical device of claims 1, 3 and 5-6 (see above).

Enami, when combined with LeChevalier-024 and LeChevalier-130, further discloses, wherein the shared line extends from at least the connection with the at least one data line to a third switch (LeChevalier-024; 822 and 812 in fig. 8), wherein the third switch controls the supply of the precharge signal from the precharge signal-generating circuit to the shared line (LeChevalier-024; 812 in fig. 8), and controls the output of the detection signal (LeChevalier-024; clear from fig. 8, that 822 controls the detection signal).

7. Claims 2 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enami et al. (US 5,892,493) in view of Plus et al. (US 5,113,134) and further in view of LeChevalier-024 (US 7,050,024).

With respect to claim 2, Enami discloses, an electro-optical device (fig. 1), comprising:

a plurality of scanning lines (G1-Gn in fig. 1);

a plurality of data lines (d1A-dnD in fig. 1);

a plurality of pixel circuits (24, 18 in fig. 1) including a plurality of electro-optical elements (18 in fig. 1) provided to correspond to intersections of the plurality of scanning lines and the plurality of data lines;

a data line driving circuit (40 in fig. 1) to supply a data voltage through the data line to each of the pixel circuits (col. 8, lines 48-60);

first switches (42 in fig. 1) that are part of a precharge circuit to control the supply of precharge signals ($\pm V_1$ in fig. 1) from input signal lines (output line from switch 46 in fig. 1) connected to at least one data line of the plurality of data lines to the at least one data line, the precharge signal being less than a data voltage (col. 8, lines 24-33); and

a data line selection circuit to set the on or off state of the first switches (44 in fig. 1).

Enami does not expressly disclose, a set of switches for controlling the output of a test signal, or a data line selection circuit that sets the state of the switches.

Plus discloses, a set of switches (17) connected to at least one data line (12) of a plurality of data lines to control the output of a detection signal (col. 3, lines 12-33) from the at least one data line to input and output signal lines (18-x); and

a data line selection circuit (19) to set the on or off state of switches (17) that control the output of the detection signal (col. 3, lines 5-11; also note the orientation of the monitoring circuitry, opposite the data line scanner. This orientation is identical to the precharge circuitry of Enami).

Plus and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of Plus in the precharge circuitry of Enami.

Furthermore the placement of the circuitry in each piece of art would suggest to meld the two pieces of circuitry, detection and precharge, into a single piece of circuitry.

The motivation for doing so would have been a reliable, fast and inexpensive circuit to test for circuit flaws (Plus; col. 1, lines 37-46).

Neither Plus nor Enami expressly disclose, wherein the test lines are shared with a precharge signal supply line.

LeChevalier-024 discloses, wherein test lines (right side of 274 in fig. 8; input of 822) are shared with a precharge signal supply line (left side of 274; output of 812 in fig. 8) to form a shared line that extends at least from a connection with the at least one data line along one line toward a precharge signal-generating circuit (294 in fig. 8) and an output of the test signal (output of 822 in fig. 8).

LeChevalier-024, Plus and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire the circuitry of Plus and Enami as taught by LeChevalier-024.

The motivation for doing so would have been to reduce the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claim 19, Enami, LeChevalier-024 and Plus disclose, the electro-optical device of claim 2 (see above).

Enami, when combined with LeChevalier-024 and Plus, further discloses, wherein the shared line extends from at least the connection with the at least one data line to a second switch (LeChevalier-024; 822 and 812 in fig. 8), wherein the second switch controls the supply of the precharge signal from the precharge signal-generating circuit to the shared line (LeChevalier-024; 812 in fig. 8), and controls the output of the test signal (LeChevalier-024; clear from fig. 8, that 822 controls the test signal).

8. Claims 9, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enami et al. (US 5,892,493) in view of LeChevalier (US 6,594,130) and LeChevalier-024 (US 7,050,024) and further in view of Rutherford (US 6,861,810).

With respect to claims 9, 13, 15 and 17, Enami, LeChevalier-024 and LeChevalier-130 disclose, the electro-optical device of claims 1, 3, 5 and 6 (see above).

Neither Enami, LeChevalier-024 nor LeChevalier-130 expressly disclose, supplying at least three precharge signals, one each selected for red, green, and blue pixel circuits.

Rutherford discloses, supplying at least three precharge signals, one each selected for red, green, and blue pixel circuits (col. 6, lines 7-27).

Rutherford, LeChevalier-024, LeChevalier-130 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the at least three precharging signals of Rutherford in the display device of Enami, LeChevalier-024 and LeChevalier-130.

The motivation for doing so would have been to ensure pixel white balance, thereby ensuring good display quality (Rutherford; col. 6, lines 7-27).

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Enami et al. (US 5,892,493) in view of Plus et al. (US 5,113,134) and LeChevalier-024 (US 7,050,024) and further in view of Rutherford (US 6,861,810).

With respect to claim 11, Enami, LeChevalier-024 and Plus disclose, the electro-optical device of claim 2 (see above).

Neither Enami, LeChevalier-024 nor Plus expressly disclose, supplying at least three precharge signals, one each selected for red, green, and blue pixel circuits.

Rutherford discloses, supplying at least three precharge signals, one each selected for red, green, and blue pixel circuits (col. 6, lines 7-27).

Rutherford, Plus, LeChevalier-024 and Enami are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the at least three precharging signals of Rutherford in the display device of Enami, LeChevalier-024 and Plus.

The motivation for doing so would have been to ensure pixel white balance, thereby ensuring good display quality (Rutherford; col. 6, lines 7-27).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Wlb
1/16/08

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